PRESCRIPTIVE ANALYTICS IN HEALTHCARE FINDS USE AMIDST PANDEMIC

Prescriptive analytics can provide organizations with actionable plans based on their gathered data and assist during a pandemic as well as in a post-pandemic world.

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Data analytics can help organizations assess their needs and predict trends. With the healthcare industry under the strain of the pandemic, analytics have become more crucial to regular operation. Prescriptive analytics in healthcare have become part of the answer for some organizations.

This part of the larger analytics umbrella uses data sets to prescribe the next best route to take, going a step further than predictive analytics. When it comes to the prescriptive action, it can be pre-programmed based on a set of rules, or the algorithm can suggest something based on the data inputs and what it learns from them.

During a pandemic, and in a post-pandemic world, the healthcare industry relies on data and analytics to understand and react to a fluid world. Prescriptive analytics has become a viable option.

Prescriptive analytics in healthcare

Going one step further than predictive analytics, prescriptive analytics is built to provide users with actionable steps for the future.

"If analytics is about understanding the present situation, and predictive analytics is about understanding what would happen given current conditions and the decisions I make, then prescriptive analytics is about which decisions I should make," said Juan José Lopez Murphy, technical director and data science practice lead at Globant. "So that what will happen is aligned with my objectives and interests."

For an industry as sensitive and ever-changing as healthcare, having potential routes laid down can be beneficial. Prescriptive analytics can assist in planning treatments, assessing high-risk cases and dealing with an influx of patients, all through the use of data.

"Prescriptive analytics takes a look back at usage, a look forward forecasting data trends as well as additional data sources and analysis of multiple outcomes and scenarios to make recommendations by utilizing capabilities technologies such as artificial intelligence," said Kevin Beasley, CIO at Vormittag Associates Inc., an ERP provider.

In this way, healthcare providers can use prescriptive analytics for planning in the current pandemic and in the post-pandemic world.

"They use prescriptive analytics in many ways, such as short-term

and long-term healthcare plan analysis, as well as disease and medical remedies for patients and providers," Beasley said. "It is also an extremely useful tool to develop new cures and treatments."

Pandemic and prescriptive analytics

When it comes to pandemics and prescriptive analytics in healthcare, Laura Craft, vice president and analyst at Gartner, sees the usefulness of both predictive and prescriptive analytics. To her, there are numerous examples where these can be helpful for organizations and patients:

- *Predicting which patients have the highest risks and prescribing what action that specific patient needs to take to minimize their risk;*

- *Predicting which patients are in early stages of clinical deterioration;*

- *Prescribing and recommending which treatment protocol might be best for a specific patient;*

- *Predicting resources and capacity strain, bundled with a prescriptive model that recommends the diversion and other activities needed to rebalance and recalibrate*

resources, beds, staffing equipment, etc.; and

- *Enhancing self-diagnostic tools by suggesting what a patient should do based on the diagnosis it has derived.*

By prescribing optimal routes, hospitals expecting an uptick in patients can use prescriptive analytics to better prepare themselves. This is not the answer for every organization, however. Situations can change rapidly, especially during a pandemic, and caution is warranted.

"Prescriptive analytics helps organizations react faster, and in many cases, they can lead to incorporating new learnings in a more streamlined manner," Murphy said. "But it also warrants caution, since the changes that happen during a pandemic might well undermine the predictive capacity of the models upon which prescriptive analytics is built, rendering its recommendations unwarranted."

Prescriptive analytics post-pandemic

Post-pandemic, prescriptive analytics in healthcare still finds its use helping organizations plan their future. The pandemic did

much to reinforce the need for healthcare organizations to attempt to be one step ahead of anything.

"The pandemic stressed the importance of prescriptive analytics and the efficiencies and opportunities that they open up will be seen more than ever as a required competitive advantage," Murphy said. "There will be challenges and changes, though, as the pandemic will have shown that many behaviors that were considered 'fixed' were actually just part of the model assumptions."

Once models have been adjusted to the different behaviors brought about because of the pandemic, prescriptive analytics can be used to properly plan.

For use cases outside of patient care, healthcare organizations can use prescriptive analytics to assist with their return to work and augment their human resource planning, according to Beasley. This could include restructuring their workforce as employees look to return to the environment and prescribing changes to building planning to prioritize health and safety.